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THE PRODUCTIVITY SLOWDOWN IN THE SERVICE SECTOR: CAN IT BE EXPLAINED BY MEASUREMENT ERRORS?

Martin Neil Baily and Robert J. Gordon

Almost two decades have now passed since the first signs of an emerging slowdown in U.S. productivity. The overall magnitude of the slowdown continues with little relief; in the business sector the annual growth rate for output per hour ("average labor productivity" or "ALP") was 1.8 percent slower over the interval 1973-87 than during 1948-73. A closer examination reveals divergent trends among major components of the slowdown since 1979. The growth in manufacturing productivity has revived to a rate even faster than before 1973, while growth in the non-goods sector has slowed further (Table 1).

In fact, if we are to believe the official government data on productivity by industry, the growth rate of ALP in two major parts of the service economy — transportation and finance/insurance/real estate (FIRE) — has been *negative* since 1979! And growth of ALP in business and personal services, while not worsening since 1979, has remained close to zero. Members of the service community are concerned about these trends, but they are also puzzled. With a massive investment in computers and other hi-tech equipment, could it really be true that output per worker in the service sector has stagnated, showing no growth at all over the past decade and half?

The question leads to a host of measurement issues examined in detail in a study of productivity growth of FIRE, transportation, construction and retailing.[1] Findings of that study are summarized in this article.

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Table 1. GDP Per Hour in the Major Sectors of the U.S. Economy
GDP in 1982 Dollars

	Average Annual Rates of Growth (Percent)				
	1948-73	1973-79	1979-87	1973-87	Slowdown 1948-73 1973-87
Business Sector	2.88	0.63	1.36	1.05	-1.83
Goods Producing Industries	3.21	0.55	2.39	1.60	-1.61
Farming	4.64	3.09	6.86	5.22	0.58
Mining	4.02	-7.05	2.34	-1.79	-5.81
Construction	0.58	-1.99	-1.67	-1.80	-2.38
Manufacturing	2.87	1.43	3.49	2.61	-0.26
Durable Goods excluding Non-Elec. Machinery	2.56	1.12	2.09	1.67	-0.89
Non-Elec. Machinery	2.03	0.70	11.54	6.76	4.73
Nondurable Goods	3.40	1.90	2.13	2.03	-1.37
Non-Goods Prod. Industries	2.49	1.39	0.17	0.69	-1.80
Transportation	2.31	1.06	-0.50	0.17	-2.14
Communications	5.22	4.25	5.09	4.73	-0.49
Elec., Gas & San. Serv.	5.87	0.05	1.44	0.84	-5.03
Trade	2.74	0.76	1.68	1.28	-1.46
Wholesale	3.14	0.10	2.39	1.40	-1.74
Retail	2.40	0.87	1.21	1.06	-1.34
F.I.R.E.	1.44	0.28	-1.15	-0.54	-1.98
Business & Personal Serv.	2.17	0.34	0.36	0.35	-1.82
Government Enterprises	-0.15	0.94	-0.15	0.32	0.47
General Government	0.21	-0.28	0.37	0.09	-0.12
Non-Profit Organizations	0.31	-0.88	-0.32	-0.56	-0.87
Emp. in Private Households	-0.35	-0.63	1.98	0.85	1.20
Rental Value of Owner Occupied Housing	n.a.	n.a.	n.a.	n.a.	n.a.

Dimensions of the Productivity Slowdown by Industry

The slowdown in productivity growth for the business economy as a whole, shown in Table 1, is -1.83% per year, the broadest measure of the overall slowdown. (The business economy excludes the four sectors shown at the bottom of the table.) The magnitude of the slowdown is the difference between growth for 1973-87 and growth for 1948-73.

The miniscule slowdown in manufacturing (-0.26%) contrasts with much larger slowdowns in key parts of the service economy — transportation (2.14%), electric and other utilities (-5.03%), wholesale and retail trade (-1.46%), FIRE (-1.98%) and business/personal services (-1.82%). Among the main parts of the service economy, only the communications sector has escaped with a minor slowdown of -0.49%.

Table 1 splits the 1973-87 slowdown period in 1979, the most recent year before 1987 with an unemployment rate of 6% or below. Between 1973-79 and 1979-87, there is a stark contrast between the stellar performance of the non-electrical machinery component of durable-goods manufacturing, where productivity growth has accelerated after 1979 from 0.70% to 11.54% per year, and the laggard performance of two important service industries in which productivity growth decelerated after 1979: transportation (1.06% to -0.50%) and FIRE (0.28 to -1.15%).

The outstanding performance of the non-electrical machinery industry stems from the segment of that industry producing computer processors and peripherals, since the official data on U.S. output is now based on the production of "computer calculating power," which, of course, has grown much faster than the number of computers shipped.

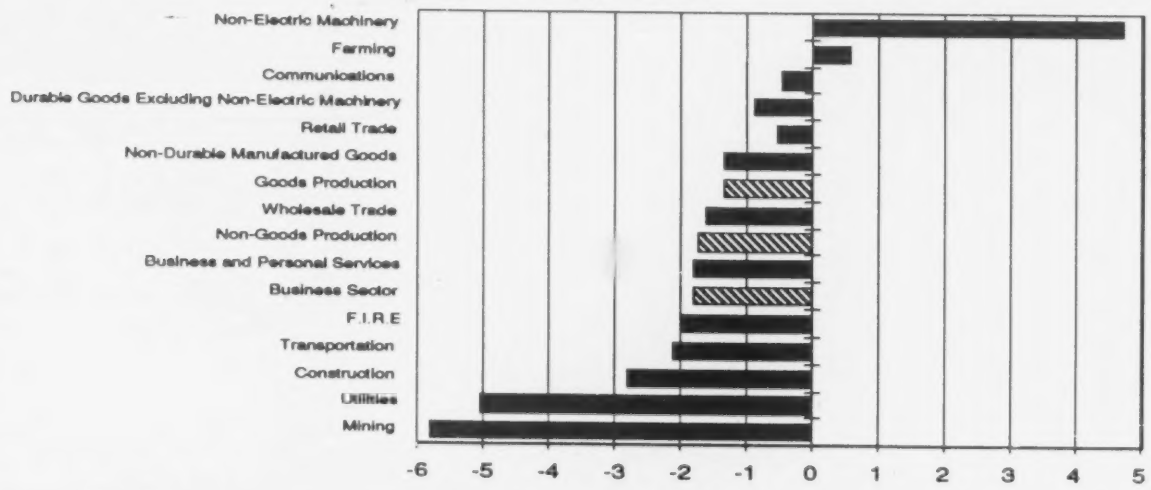
Clear payoff from computing power (in the form of electronic switching devices) has occurred in the communications industry, in which ALP has grown at almost 5% per year since 1973, with a minimal post-1973 slowdown. Some benefits of computerization may also be showing up in wholesale trade, where there was a substantial pickup in ALP growth after 1979. But there is still a basic puzzle. Since much of that rapidly growing calculating power produced in the non-electrical machinery industry is being purchased by business firms in the transportation and FIRE sectors, why hasn't the explosion of computer power boosted output per worker in these computer-using sectors, and why instead has productivity growth been negative since 1979?

The productivity slowdown presented by industry order of magnitude in Figure 1 shows, for example, that the biggest productivity slowdowns have been in the mining and utilities industries, where output is relatively homogenous and easy to measure. There is no close association between the magnitude of the slowdown and the likelihood of measurement error.

How Mismeasurement Can Occur — Labor Input Ignores Skill and Experience

Average labor productivity (ALP) is output divided by labor input measured in hours. Output, in turn, is calculated by dividing value of production in current dollars by a price index, or "price deflator." Of the three basic data series that are ingredients in productivity statistics — hours, current-dollar value of production, and price deflators — errors are most likely to be found in hours and price deflators. The current-dollar value of production is more likely to be measured with relative accuracy. The main defect in measuring the latter is the possibility that some economic activity in the underground economy may be missed. However, any such omission would not have any necessary implications for productivity growth, since labor input in the underground economy is missed as well.

Figure 1
The Change in Labor Productivity Growth Between the Periods 1948-1973 and 1973-1987
(Percent Change Per Year)



Possible mismeasurement of labor input is less complex and more straightforward than that of price deflators. The present official measure of hours of work treats labor input as a homogenous concept and weights each hour equally, no matter who is doing the work. By contrast, the conceptual ideal would weight each hour by how much it produces, weighting an hour of work by a highly skilled computer programmer more than an hour of work by a teenage cashier working at a supermarket. This comparison suggests why the proper measurement of labor hours is of interest to firms in the service economy: demographic changes taking the form of an increased share of teenagers and women in the workforce have had their greatest impact in the service sector.

One controversial problem is that we cannot observe the relative marginal product of groups of employees and must infer how much they produce indirectly by observing their relative wage. This technique is used by studies that attempt to convert the official data on hours to a measure of effective labor input; if a teenage male typically earns 40% of the wage of an adult male, his hours of work are multiplied by 0.4 when added to the hours of adult males.

While this approach may be acceptable for teenagers, who clearly have less experience and are less desirable employees because of high turnover, it is debatable approach for adult women, who could be just as productive as adult men but be paid lower wages as a result of discrimination. If so, the use of relative wages to measure relative productivities would lead to an understatement of the effective hours of women. The use of relative earnings to measure the effect of changes in educational attainment is conjectural for related reasons. College graduates may have higher earnings than high school graduates because they are more able people, irrespective of their educational attainment.

How much of the post-1973 slowdown in productivity growth was caused by mismeasurement of labor input? The contribution of greater educational attainment, i.e., years of schooling, seems to be negligible, since the growth rate of educational attainment was about the same before and after 1973. This leaves the increasing share of teenagers and women in the labor force as a factor that has caused the growth rate of effective labor input to speed up less rapidly than in the official data on raw hours of labor input. Hence, the growth of ALP since 1973 has slowed down

less in relation to corrected hours than with respect to raw hours. Despite these controversies, it can be concluded that, on balance, a figure of 0.2% a year is a fair estimate of the contribution of labor input measurement errors to the total productivity growth slowdown of 1.8% a year.

Price Deflators Overlook Quality Improvements

If the growth of the current-dollar value of production is measured with relative accuracy, then any overstatement of the increase in the price deflator for a given industry or for the total economy leads directly to an understatement of the growth of output. For several decades economists have been aware of the possibility that price increases may have been overstated because of a failure of the official government price indexes to take adequate account of quality improvements. If a new higher-quality model typewriter is introduced at a 10% higher price, and we estimate that its higher quality is "worth" a 10% premium to the user, then the true quality-adjusted price has not increased at all.

There is substantial evidence, mainly for complex capital goods, that the government indexes have systematically failed to make adequate allowances for quality improvements and hence have overstated the rate of price increase and understated the growth of output and productivity for manufacturers of capital equipment and consumer durables. Quality adjustments by the government statistical agencies have indeed been made, but have been insufficient in amount. This failing has become more acute in the past decade as a result of rapid quality improvements made possible by electronic components. Government price indexes overstate price increases or understate price declines by relatively large amounts for such products as electronic typewriters, calculators, cash registers, photo copying machines, and telephone switching equipment. This finding that price deflators for durable goods in manufacturing understate quality improvements naturally raises questions about the adequacy of price indexes for the service sector.

Financial Sector Productivity Widely Understated

A detailed investigation of the FIRE sector produced persuasive evidence that the growth of output and productivity have been understated. In the dynamic banking and financial service sectors the case is clearest, because the official productivity data are not based on the deflated value of production, but instead *measure the growth of output by the growth of labor input*, a highly inadequate proxy. By definition, this approach ignores any gains in output per hour.

By contrast, the number of shares traded on financial markets per employee in the securities industry grew at an annual rate of 9.7% during 1973-79 and 12.3% during 1979-86. Labor productivity in check processing grew at an annual rate of 7.6% between 1971 and 1986. These are very large numbers. Productivity in check processing more than tripled in this period — the same one in which government data imply that there was no improvement in banking productivity at all. The banking and financial services industries taken together may well represent the single most important example of mismeasurement in official output and productivity data.

There are problems as well in the insurance and real estate industries. The price indexes used to deflate the value of services provided by insurance agents pertain not to their own activities, as they should, but rather to the industries being insured — especially auto repairs and medical coverage. If productivity growth in auto repairs is truly slow and its price deflator is measured correctly and rises relatively rapidly, while the insurance industry invests heavily in computers to keep from raising its fees, then the present procedure of deflating insurance output

by the deflators of auto repairs and other insured industries doubtless leads to an understatement of output and productivity growth for the insurance industry.

The single biggest segment of FIRE is the real estate industry, whose current-dollar output consists of rental income and realtor commissions. Here, again, there is probably an error introduced by the failure to take quality improvements into account. A commercial office building today is very different from one built twenty years ago, along such dimensions as the speed and computer control of elevators, quality of heating and cooling systems, and provision of flexible wiring for electronic equipment. The typical suburban low-rise rental complex, centrally air-conditioned and centered around a swimming pool and health club, provides a distinctly higher level of quality for the residential rent dollar than the typical urban apartment building of the 1890s or 1920s. Despite a probable error in price deflators, part of the productivity growth slowdown in real estate may be accurately measured and reflect the willingness of real estate investors in the last decade or two to accept low returns in the form of current income in exchange for large anticipated capital gains (where the latter are properly not counted as part of real income or productivity).

Transportation: No Accounting for Deregulation

The startling negative growth rate of transportation productivity for the period since 1979 is based on Commerce Department GNP data. An alternative productivity index constructed by the Labor Department shows a much healthier picture, with productivity growth about 1.5% faster per year since 1973. While the reasons for the discrepancies between the two agencies are not entirely clear, one glaring error has come to the surface. The GNP data determine the output of the airline industry by dividing current-dollar sales by the Consumer Price Index (CPI) for air travel. But this price index makes no allowance for discount fares during the first phase of airline deregulation in the late 1970s and early 1980s. As a result of the spread of discount fares, the increase in airline "yield" (passenger revenue per mile) between 1972 and 1986 was just 61%, while the CPI for air travel over the same period increased by 191%, more than three times as much.

A consistent pattern in railroads and trucking duplicates that of airlines. Over the period since 1972, the growth rate of output as measured by physical units — e.g., ton miles — exceeds growth of the Labor Department's output measure, which in turn is greater than the growth of the output measure recorded in the official GNP data. There appears to be no simple measurement culprit for railroads and trucking analogous to the discount fare issue for airlines, but the implication of GNP data that average "quality" of a ton-mile has decreased steadily since 1972 is highly suspicious.

Retailing Measures May Be On Target

The official data on retailing productivity reveal a sharp difference emerging since 1972 between the performance of food and nonfood retailing. Productivity in the food sector (both supermarkets and food away-from-home) has *fallen* at a rate of about one percent per year, while nonfood retailing productivity has grown at a healthy rate of about 2.5% a year. Findings on supermarket productivity suggest that this is one case where the productivity slowdown is real. By virtually every measure the supermarket industry made more rapid progress in the first part of the postwar era than since the late 1960s. More rapid growth before the late 1960s is evident not just in real sales per employee, but also in such measures as the variety of items carried by supermarkets. Such indicators of consumer convenience as the percentage of stores open Sundays and on week nights also increased more rapidly in the early part of the postwar era, indicating that productivity growth would remain the same even if supermarket output were broadened to include "convenience."

Measurement Error May Account for Third of Slowdown

Based on these findings, roughly one-third, or 0.5% to 0.7%, of the productivity slowdown of 1.8% a year for the entire business sector can be attributed to documented or conjectured measurement errors. Errors in measuring labor input may account for about 0.2% to 0.3%, or at most, one-fifth of the total slowdown. Another contribution of 0.2% comes from output measurement problems, mainly the result of inadequate quality adjustments in price indexes for capital goods and from poor or nonexistent deflators in the FIRE sector. Further research is likely to turn up another 0.1% to 0.2% in such areas as medical care, where existing price deflators do not make an adequate allowance for quality change.

Two-thirds of the productivity slowdown, then, remains a real phenomenon occurring in the U.S. economy and is not surprising, for two reasons. First, part of the productivity slowdown is real, especially the depletion of oil resources (which shows up in the mining industry) and the effect of environmental regulations on the electric utility industry. Second, to explain the slowdown it is not enough to point to a source of mismeasurement; rather, it must be shown that such a source of mismeasurement *has gotten worse since 1973*. Some have, but others have been with us since long before 1973.

While these conclusions pertain to the economy as a whole, within specified industries in the service economy, the potential role of measurement errors as an explanation of the productivity slowdown is much larger. Banking and financial services probably represent an extreme case of need for better measures. In dynamic industries of this kind, where the role of the computer is pervasive, new and superior data could well show that productivity growth is at least as rapid as in manufacturing, or even as in the economically dynamic communications industry.

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1 *"Measurement Issues, the Productivity Slowdown, and the Explosion of Computer Power,"* Brookings Papers on Economic Activity, *vol. 19, 1988, no. 2, forthcoming in December 1988, will be available from the Brookings Institution, 1775 Massachusetts Avenue, Washington, D.C. 20036 (202/797-6000).*

AUSTRALIA, NEW ZEALAND SIGN SERVICES TRADE PACT OFFERING POINTERS FOR GATT TALKS

Charles P. Heeter, Jr.

Growing interest in trade in services as a vehicle for economic growth led recently to approval of a comprehensive services accord between Australia and New Zealand. The Australia-New Zealand Protocol on Trade in Services, signed on August 18, will be implemented on January 1, 1989 — the implementation date for the U.S.-Canada Free Trade Agreement (FTA) if Canadian voters return the Conservative Party to power in national elections on November 21. Together, these bilateral agreements may provide useful experience for negotiators in the Uruguay Round of GATT, who are wrestling with complex issues on services in a multilateral context.

The Australia-New Zealand Protocol is the latest of a series of agreements between the two countries in a long-standing effort to establish closer economic ties. Both countries rely heavily on international trade, but unlike the United States and Canada, their geographic proximity has not made them each other's largest trading partners. Instead, the relatively small size of their economies, combined with their heavy dependence on agriculture and commodities, required them to look to the rest of the world for export markets. As prices of commodities fell in the early 1980s, both countries sought to diversify their exports. In doing so, they recognized that an enlarged market between them would hone the abilities of their manufacturers and service industries to compete in the global marketplace.

The Protocol on Services was negotiated under the Closer Economic Relations-Trade Agreement (ANZCERTA), a 1983 agreement intended to move the two countries to free trade in goods by 1995. During the 1988 review of the Agreement, negotiators decided to accelerate the timetable to mid-1990 and to expand the scope to include services even earlier.

Bilateral Pacts Have Much in Common

Similar in many respects to the U.S.-Canada FTA, the Australia-New Zealand accord has as its centerpiece the principle of national treatment — the requirement that each country treat service providers of the other no less favorably than its own. It also encourages mutual recognition of licensing and certification requirements, such as those for accountants and architects, and assures they will not be used to unfairly restrain one country's professionals from practicing in the other.

Additional rules ban the introduction of new government subsidies to promote services exports and require government monopolies, such as the postal or telephone services, to treat all customers from the two countries on an equal basis with respect to services offered and rates charged.

Most important, the agreement requires the two governments to regulate services in a transparent way. Laws and regulations must be made public and, in developing new measures, the governments must allow affected companies from either country to comment. Governments must notify each other of new developments affecting the agreement and consult with each other to resolve disputes. In addition, a comprehensive review of the Protocol, with an eye to further liberalization, must be conducted by the end of 1990.

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Lessons for Geneva

Negotiators for both the Australia-New Zealand and U.S.-Canada accords caution against expecting an easy translation of their approaches to the Uruguay Round negotiations in Geneva. Success in these bilateral talks was conditioned on a history of close economic relations, a considerable degree of existing free trade and a limited number of negotiating parties. Even so, they offer some useful experience on how to find common ground:

- Significant progress on services was possible as part of a broader trade undertaking involving many non-service commercial issues. This was not a question of trade-offs between services and manufacturers or agriculture, but rather one of rising expectations. Similarly, progress on goods negotiations in Geneva should spur progress in services and movement on services should encourage movement in other areas.

- The bilateral talks placed a premium on pragmatism. Instead of arguing over concepts and definitions, negotiators quickly identified what they knew to be commercial services and then negotiated how rules might be applied in these industries. While the Australia-New Zealand approach of implementing the rules across the board with very limited exceptions gets closer to the model of free trade, the U.S.-Canadian approach of excluding the more politically sensitive service industries may be more politically acceptable in a multilateral context. In either case, progress came only when real industries and actual barriers were put on the table.

- Approaches to services went beyond the strictly defined "trade" context in order to realize true benefits. Rules that cover only crossborder sales immediately exclude many services that must generally be delivered at the location of the customer. The U.S.-Canada pact broke ground by liberalizing investment rules and permitting freer movement of business people across the border, issues of prime importance to service industries. And under ANZCERTA, Australia and New Zealand have launched a program to harmonize business regulations such as competition policy, consumer protection and copyright law, in order to reduce red tape and costs for service providers, while still meeting the public purposes for which these laws were established.

- Finally, the two agreements demonstrate that bilateral services efforts need not be in conflict with commitments to multilateral services trade. Both specifically take account of the countries' multilateral obligations, and neither raises barriers to third countries.

The Uruguay Round negotiators would do well to examine these approaches as they work to achieve a multilateral agreement that truly spurs the growth of international services.

SERVICES ECONOMIC HIGHLIGHTS

CSI

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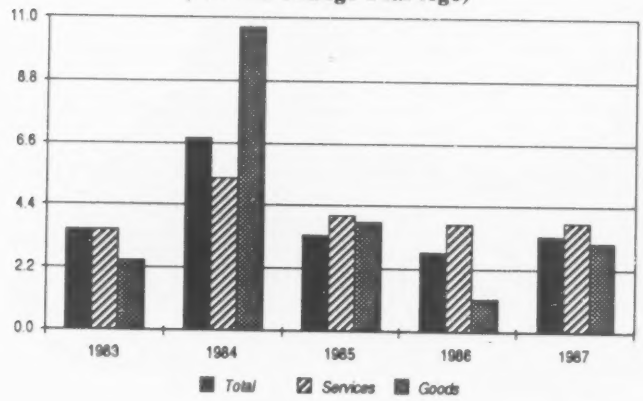
Services At a Glance

- ***Service Sector GNP Measured by Production***, available on an annual basis only, increased 3.9% in 1987 and 3.8% in 1986.
- ***Services GNP Measured by Expenditures***—or the service components of expenditures by consumers, businesses, government and the net service export balance—increased 2.8%, at an annual rate, in the second quarter of 1988.
- The ***Service Sector Leading Index***, which leads the sector's activity by about six months, rose at an annual rate of 0.1% in August, while the Commerce Department's Index of Leading Indicators (LEI) grew 1.7%. The annual growth rate of the Coincident Index, reflecting current economic conditions for the Service Sector, was a solid 3.1%.
- ***Employment*** growth in Service-Producing industries continued to be robust through September. An additional 2.258 million persons have joined the Services workforce since the end of 1987. For all of 1987, the increase was 2.5 million.
- ***Personal Consumption Expenditures*** on services increased at an annual rate of 2.8% in the second quarter, following a 3.9% gain in the first quarter.
- ***Prices of Consumer Services*** were up 4.6% in September compared with the price level a year ago.
- ***Profits*** of Service-Producing industries rose 2.6% in the second quarter of 1988 over the second quarter of 1987.
- ***Plant and Equipment Expenditures*** by Service-Producing industries increased at an annual rate of 21.1% in the second quarter, following unchanged spending in the first.
- The ***Stock Price Index*** for Services increased 3.5% in September, following small declines in July and August.
- ***Net Services Exports*** posted a deficit of $492 million in the second quarter of 1988, the first time since 1958—attributable to a deterioration in the investment income balance. The balance on true services trade was $2.5 billion.

Bottom Line: Service Sector economic expansion is steady, though at a slower pace than in recent years; employment gains remain strong. The "boomy" growth rates of the Goods Sector seen over the past year are also moderating.

The Service Economy refers to the total economy, in which the Service Sector is the dominant factor. The Service Sector represents 68% of real production GNP and 76% of employment. Major segments are: Communications; Transportation; Public Utilities; Finance, Insurance and Real Estate; Wholesale and Retail Trade; Government; and "Service," a diverse category including Business Services, Personal Services and Health Services.

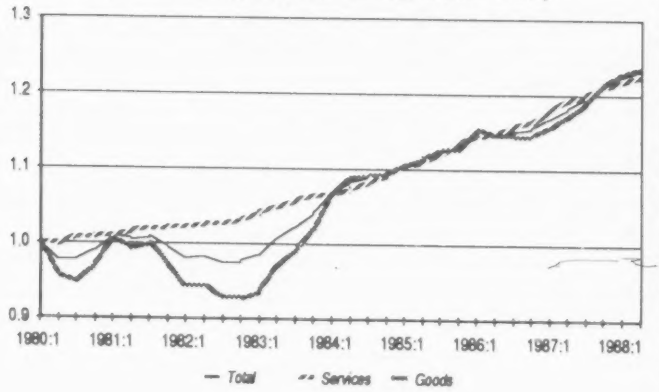
Chart 1
GNP Product Measure
(Percent Change Year Ago)



Services Output GNP Higher

Services GNP measured by product, i.e., the total output of all services, increased 3.9% in 1987 following a 3.8% increase in 1986. The product measure of goods GNP was 3.2% following a 1.2% increase in 1986. Within the Goods Sector, Manufacturing GNP was up 4.3% and Agriculture, Construction, and Mining 0.9% in 1987.

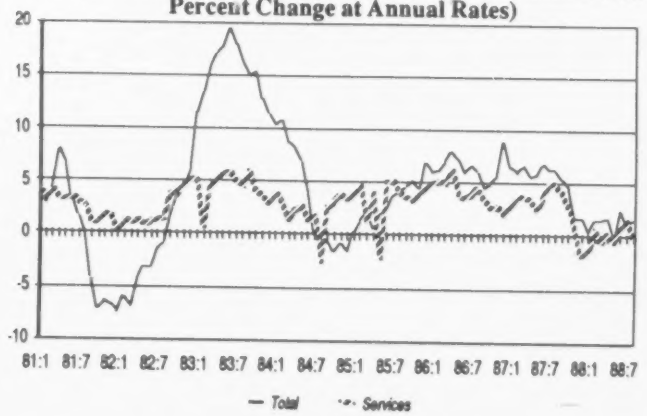
Chart 2
Real Gross National Product
(Total and by Sector, Indices, 1980:1 = 1.0)



Service Expenditures GNP Up

Second quarter real Services GNP—measured by expenditures—increased at an annualized 2.8%, following an upward revised 2.4% growth rate in the first quarter. The Goods component—including Construction—increased 3.1%, slower than the 4.2% posted in the first quarter. Goods less Construction GNP increased 3.3%. Total GNP increased 2.9% in the second quarter, after a 3.4% growth in the first.

Chart 3
Leading Economic Indicator Indices
(Total Economy and Service Sector, Six-Month Smoothed Percent Change at Annual Rates)

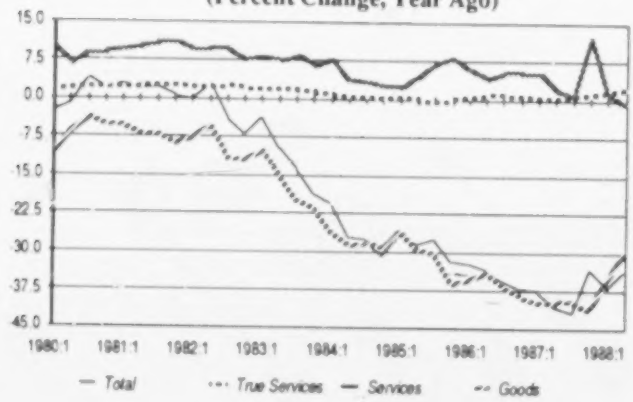


Services Leading Index Flat

The Leading Index for the Service Sector edged up 0.1% in August, following a 1.7% rise in July, with the Coincident Index for Services slowing to a 3.1% increase, after a large 4.6% rise in July. The leading indicator index for the total economy rose 1.7% in August and 1.2% in July.

The Service Sector Indices are produced by the Center for International Business Cycle Research, Columbia University.

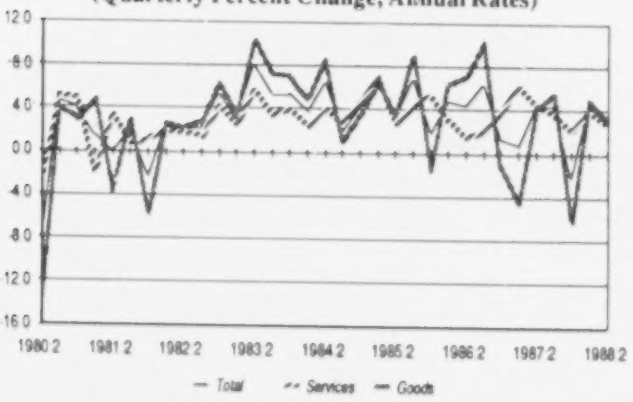
Chart 4
Current Account Balance and Components
(Percent Change, Year Ago)



Service Balance in Deficit; Trade in Services in Surplus

The total Services trade balance was in deficit by $0.5 billion in the second quarter of 1988—the first time since 1958. The deficit is the result of a deteriorating investment income balance. The surplus on the true service balance has rose to $2.5 billion from $1.6 billion in the first quarter. The merchandise trade deficit improved to $33.3 billion, from $36.9 billion in the first quarter.

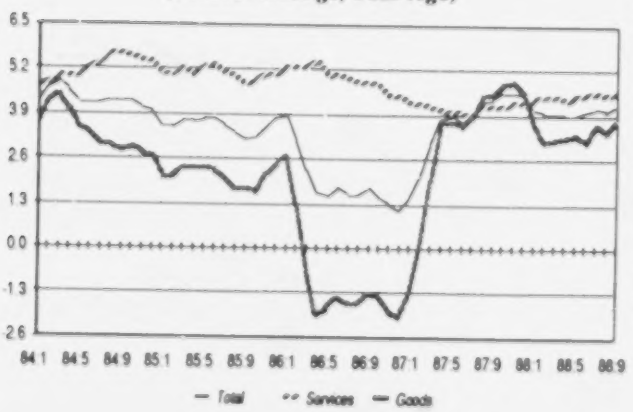
Chart 5
Real Personal Consumption Expenditures
(Quarterly Percent Change, Annual Rates)



Spending on Services Up 2.8%

In the second quarter of 1988, personal consumption expenditures on Services increased at an inflation-adjusted 2.8% annual rate, while personal expenditures on Goods increased 3.2%. In the first quarter, consumption expenditures on Services were up a revised 3.9%, and on Goods, a revised 4.9%.

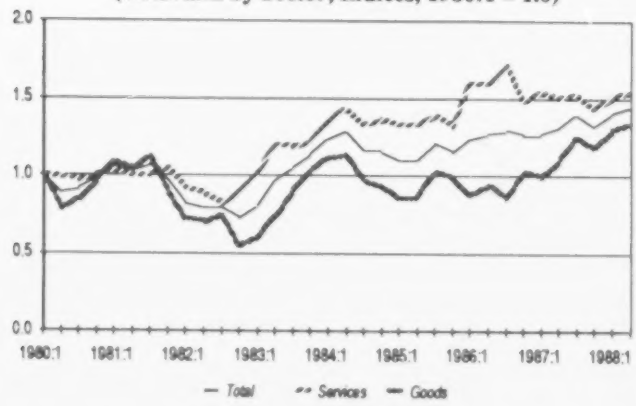
Chart 6
Consumer Price Indices
(Percent Change, Year Ago)



Service Inflation Still High

The year-over-year price increase in the Service component of the Consumer Price Index (CPI-U) for September accelerated slightly to a 4.6% rate from a year-over-year 4.5% increase in August. The year-over-year increase in the Goods component of the CPI-U was 3.8%, up considerably from 3.4% in August. The overall CPI-U increased 4.2% in September, following a year-over-year inccrease of 4% in August.

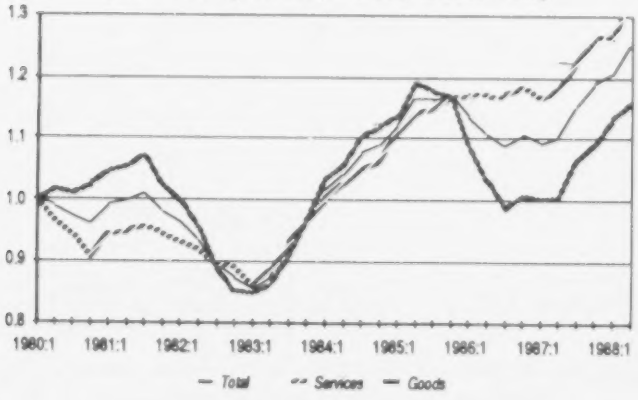
Chart 7
Corporate Profits for Domestic Industries
(Total and by Sector, Indices, 1980:1 = 1.0)



Service Sector Profits Pick Up

In the second quarter of 1988, profits of Service-Producing industries increased 2.6%, following year-over-year declines in the previous five quarters. Profits of Goods-Producing industries rose 22.1%, compared to a year ago. In 1987, profits of Service industries declined 6% after an increase of 19.4% in 1986. Profits of Goods industries grew 22% in 1987, following declines of 0.4% and 10.3% in the previous two years, respectively.

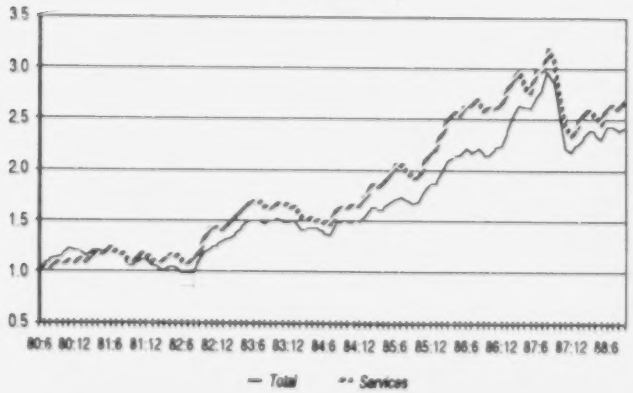
Chart 8
Real Expenditures on Plant and Equipment
(Total and by Sector, Indices, 1980:1 = 1.0)



Services Investment Climbs

Service industries increased real expenditures on plant and equipment (P&E) by a large 21.1%, at an annual rate, in the second quarter, following an upwardly revised 0.8% contraction in the first quarter. Goods industries increased capital outlays 8.7%, after a larger 15.2% increase in the first quarter. Overall spending on P&E increased 15.9% in the second quarter, following a 5.8% increase in the first.

Chart 9
S&P 500 and Services Stock Price Indices
(1980:6 = 1.0)



Stock Prices Lower

The Services Stock Price Index and S&P 500 rebounded in September—3.5% and 1.6%, respectively—following small declines in July and August. The Services Stock Price Index is based on S&P indices for 13 service industries and is compiled by the Center for International Business Cycle Research.

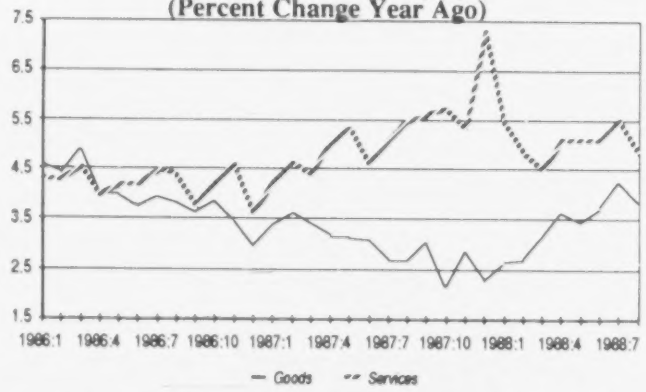
SERVICES AND THE JOB QUALITY DEBATE

by Allen Sinai and Michael Drury

During the past year, the service sector has added 3.1 million workers to its rolls, while goods producers have absorbed 700,000. The service sector has accounted for more than 81% of net new jobs so far in 1988. Presently, service sector jobs represent approximately 76% of all employment in the United States.

Compensation per employee in service-producing industries has risen 4.8% over the past twelve months, while goods-producing employees have seen an average 3.8% increase in compensation. This continues a six-year pattern of better wage gains in the service sector, although from a lower level of average compensation per employee, than in the goods sector.

Chart 1
Compensation Per Employee
(Percent Change Year Ago)



"Good Jobs at Good Wages"

The rapid growth of employment in the service sector, but at average compensation levels below those in the slower growing goods-producing sector, has become a central issue in the Presidential campaign. The debate focuses, in large part, on whether the new service sector jobs are "quality" jobs — in terms of wages, benefits, upward mobility and potential job tenure.

Yet, there has been little discussion of the economic forces behind the shift in sector employment. As in all advanced industrial societies, the demand for services rises fastest as incomes grow and societies become richer, since the demand for basic items such as food and shelter are already satisfied.

Indeed, a major indication that a society's standard of living is rising is the availability of discretionary income to purchase services such as better medical care, education, or, for example, professional advice in legal, financial and other personal matters. Workers with rising incomes buy services such as child care, food preparation, laundry and dry cleaning to free up leisure time to enjoy other services like entertainment and travel.

Decisions on the level of hiring and pay in both the goods and service sectors are determined by the supply and demand for labor. Both sectors have high-paying and low-paying industries or positions, largely reflecting the level of skill needed to perform each particular job and the availability of workers with those skills — as well as the cost of available alternatives such as moving production overseas or increasing investment in technology.

Lies, Damn Lies and Statistics

In defending claims that the U.S. is or is not creating good jobs at good wages, both candidates have put forth a blizzard of statistics — often with conflicting interpretations of the same data. A recent flurry of academic reports on the topic have been just as divided on the evidence.

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The root of the problem lies in the fact that numbers, like words, can be leveraged to support a particular position. Different results can be obtained by looking at wages, rather than broader income measures covering wages, salaries, benefits and proprietors' income from self-employment. Excluding agriculture sector wages and employment also may bias the results. Also, the level of inflation-adjusted income depends on which price measure is used. The Consumer Price Index has been changed many times in its forty-year history, and there are alternative price measures, such as the personal consumption deflator, as well.

Furthermore, the choice of time period is crucial to the result of any study. Preferably, data should be analyzed over comparable periods — for example, from peak to peak or trough to trough in the business cycle. However, since the current economic cycle is still unfolding, new evidence may continually redraw the economic landscape.

One way to bring current trends in employment and earnings into sharper focus is through an historical perspective. How is employment performing in this expansion relative to past economic expansions? Is income growth stagnating? How have the various sectors of the economy fared in both job growth and wage gains?

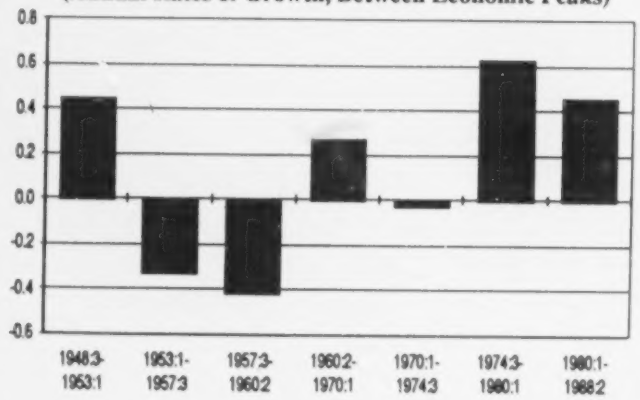
Job Growth Reflects Population Growth

Two of the key reasons for the steady growth in employment throughout the postwar period has been the entrance of the baby boom generation into the labor force and the rising proportion of women who choose to work.

Employment growth naturally reflects the growth in work-age population (persons over 16 years of age), so the entry of millions of young workers into the labor pool during the late 1960s and the early 1970s swelled employment. Indeed, the rising number of births each year from the depressed 1930s to the peak of the baby boom in 1959 is a major factor in the constant job growth of the U.S. during the postwar period. Now, slower growth in the adult population, as the baby bust generation of the late 1960s enters the labor force, is slowing the rate of increase in employment.

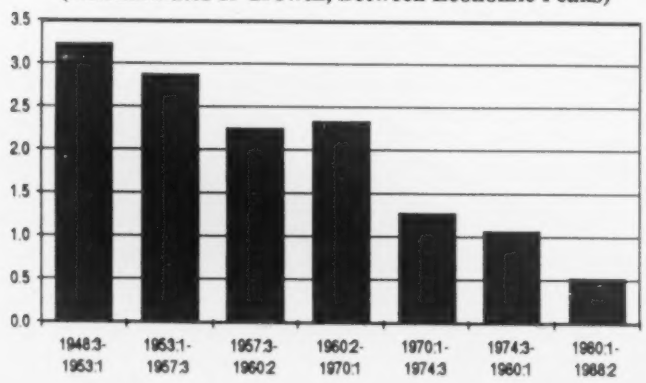
To gain a clearer picture of employment trends, employment growth can be adjusted for population growth just as income measures are adjusted for inflation. Chart 2 shows how employment growth would have appeared if the work-age population had remained constant over the postwar period. During the post-Korean war period in the 1950s, employment would have declined except for population growth. During the long expansion of the 1960s, jobs grew at only a moderate pace net of the strong growth in work-age population caused by the entry of the baby boom into the labor force.

Chart 2
Total Postwar Employment Growth
Assuming Work-Age Population Stayed Constant
(Annual Rates of Growth, Between Economic Peaks)



Since 1974, population-adjusted job growth has been significantly stronger, primarily due to rapid growth in labor force participation of women. During the late 1970s, the percentage of work-age

Chart 3
Total Real Nonfarm Compensation Per Hour
(Annual Rates of Growth, Between Economic Peaks)



adults with jobs rose at an 0.63% per-annum rate — the fastest in the postwar period. More recently, population-adjusted job growth has slowed slightly due to slower growth in the percentage of work-age women with jobs.

Income: A Creature of Supply and Demand

Income growth in the United States has slowed throughout the postwar period due in large part to rapid growth in the supply of labor. At home the baby boom and influx of women into the workforce have increased competition for jobs, thus holding down wage gains. Moreover, growing international competition adds particularly to the available supply of low-wage labor — forcing domestic workers to limit wage gains or accept wage cuts in some areas, or see the jobs move overseas.

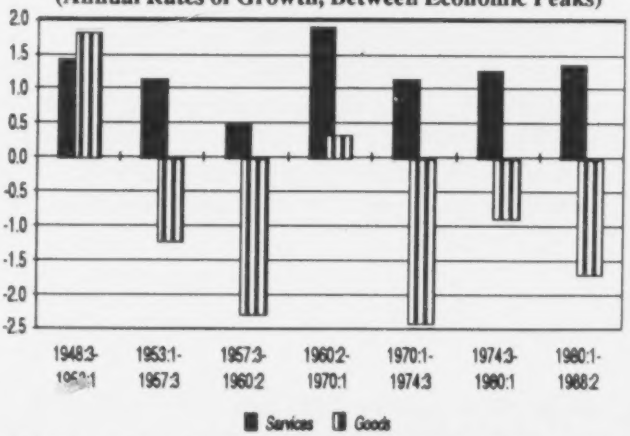
The broadest measure of nonfarm workers' remuneration, compensation per hour, when adjusted for inflation, shows real purchasing power has risen at a modest 0.5% per year since the last cyclical peak in the first quarter of 1980 (Chart 3). Growth in real proprietor's income — that is, inflation-adjusted income from self-employment — has also slowed, on average, over the postwar period to an 0.5% annual rate during this business cycle.

Real nonfarm compensation per hour measures not only changes in wages and salaries, but also changes in benefits. For most of the postwar period, benefits have added significantly to wage and salary growth. Since 1982, however, average real benefits per worker have slumped, exacerbating the slowdown of income growth. Benefits have declined because companies often choose to cut these less visible forms of pay, rather than wages, when trimming labor costs. Lower benefits also reflect the shifting shares of employment in the goods and service sectors, since benefits account for more than 30% of goods sector compensation, but only 26% of remuneration in the service sector.

Steady Service Sector Job Growth in All Postwar Years

Throughout the postwar period, growth in service sector employment, adjusted for population growth, has maintained a stable pace, averaging 1.4% per year (Chart 4). This pattern of consistent growth is markedly different from the experience of the agriculture and goods sectors over the same years. Farm sector employment has fallen in every postwar business cycle, while growth in goods-producing jobs has failed to even match population growth in five of the seven postwar cycles. Moreover, while the decline in farm sector employment,

Chart 4
Employment Growth by Sector
Adjusted for Population Growth
(Annual Rates of Growth, Between Economic Peaks)



adjusted for population growth, is now slowing, the far larger goods-producing sector has seen its largest population-adjusted job losses over the past eighteen years. Growing pressure on U.S. job creation from less costly labor overseas and technological advances in productivity-enhancing equipment suggest that goods sector jobs will continue to decline.

Yet, not all industries in the goods sector nor all industries in the service sector, have followed the same patterns on hiring and pay over the postwar period. The fortunes of the goods and service sectors are not distinct and separate, but inextricably intertwined in the complex economy of an advanced industrial nation. It is the different economic forces affecting supply and demand for labor in each industry which determine the level of jobs and wages.

Increased Competition Hampers High-Wage Job Growth

Manufacturing, which accounts for the lion's share of the goods sector economy, has borne the brunt of the population-adjusted decline in that sector's employment. Fierce international competition has shifted jobs overseas to lower-cost production centers and stimulated strong productivity gains domestically, as companies have exploited technological advances and cut the demand for manufacturing workers. Only during the business cycles containing the Korean conflict and the Vietnam War did manufacturing jobs rise faster than population growth — because military goods, for reasons of national security, are not subject to international competition (Table 1).

Table 1
Employment Growth by Sector Adjusted for Population Growth
(Annual Rates of Growth, Between Economic Peaks)

Period from Peak to Peak	1948:3-1953:1	1953:1-1957:3	1957:3-1960:2	1960:2-1970:1	1970:1-1974:3	1974:3-1980:1	1980:1-1988:2	1948:3-1988:2	1948:3-1974:3	1974:3-1988:2
Payroll Employment	1.68	-0.01	-0.44	1.23	-0.09	0.80	0.60	0.68	0.69	0.68
Goods	1.88	-1.44	-1.96	0.09	-1.68	-0.76	-1.62	-0.70	-0.39	-1.27
Manufacturing	1.92	-1.72	-1.87	0.14	-2.01	-1.25	-2.01	-0.90	-0.47	-1.71
Construction	3.76	0.64	-1.28	0.53	-0.28	0.60	0.61	0.71	0.77	0.61
Mining	-3.58	-2.39	-6.42	-3.04	0.56	4.51	-4.76	-2.22	-2.77	-1.16
Services	1.54	0.98	0.53	1.87	0.70	1.48	1.42	1.36	1.32	1.44
Transportation & Utilities	-0.24	-1.36	-3.32	-0.39	-1.23	-0.17	-0.37	-0.75	-0.99	-0.29
Wholesale Trade	1.03	0.18	-0.14	0.91	0.17	1.28	0.55	0.66	0.57	0.84
Retail Trade	1.38	0.35	0.29	1.42	0.74	1.46	1.64	1.19	0.99	1.57
Finance Insurance & Real Estate	2.40	2.39	1.07	1.77	0.89	1.89	2.02	1.83	1.76	1.97
Other Services	1.56	2.31	1.79	3.06	1.41	2.99	3.20	2.55	2.25	3.12
Government	2.93	1.82	1.81	2.57	0.78	0.46	-0.35	1.37	2.11	-0.03

Sources: Department of Commerce and The Boston Company Economic Advisors, Inc.

Ironically, wage growth in manufacturing exceeded wage growth in other sectors even while the number of manufacturing jobs were declining relative to the work-age population during the 1970s. This paradox arose, in part, because unions generally favored wage gains over employment security in the 1970s. This position has been reversed in the 1980s, leading to declining real wages, on average, in manufacturing industries.

Furthermore, the apparent wage growth in manufacturing is, in part, illusory — created by the fact that low-paying, low-skill manufacturing jobs in industries such as textiles and apparel have moved overseas faster than higher-paying steel and automobile production jobs. Thus, a growing percentage of the manufacturing jobs remaining in the U.S. are in relatively higher-paying industries, creating an upward bias on reported average wages.

In the service sector, high-paying transportation and public utilities employment also has failed to keep pace with population growth throughout the postwar period. Competition from the

Table 2
Average Hourly Wages for Production Workers, Adjusted for Inflation
(Annual Rates of Growth, Between Economic Peaks)

	All	Construc-tion	Manufac-turing	Trans. & Public Util.	Wholesale Trade	Retail Trade	Fin., Ins. & Real Estate	"Other Services"
1964:1-1970:1	1.91	2.95	1.37	1.43	n.a.	n.a.	1.54	2.83
1970:1-1974:3	0.71	0.73	0.84	2.27	n.a.	n.a.	-0.87	1.18
1974:3-1980:1	0.00	-1.44	0.63	0.81	0.23	-0.19	-0.56	-0.17
1980:1-1988:2	-0.41	-1.14	-0.29	-0.40	-0.19	-1.38	1.04	0.66

Sources: The Department of Commerce and The Boston Company Economic Advisors, Inc.

automobile — a lower cost transportation option — reduced demand for public transportation. Technological advances in communications eliminated many jobs in that industry. Yet, until this business cycle, as in manufacturing, real wages continued to grow at the expense of new jobs.

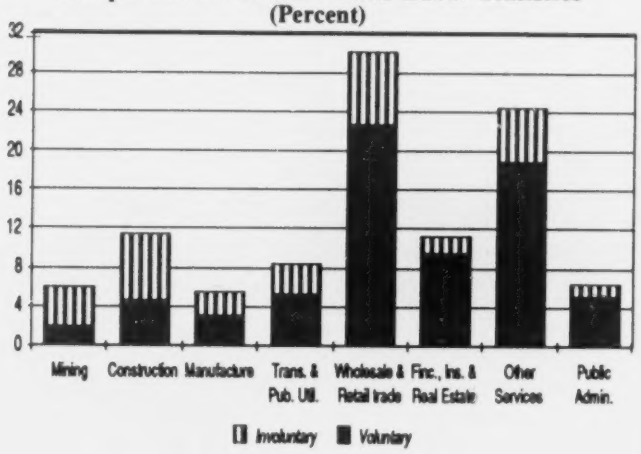
During the current business expansion, new competition due to the deregulation of broadcasting, airlines and trucking has been the equivalent of foreign competition for manufacturers. Increased pressure on corporate revenues has translated into cutbacks on both wages and hiring.

Alternatively, in the goods-producing construction sector — where domestic producers have generally not felt increased competition from foreign producers or deregulation — job gains have exceeded population growth in all but two postwar cycles, the late 1950s and early 1970s. Yet, construction wages have slipped in real terms since 1974 as competition for jobs from the readily available pool of skilled manual laborers, thrown off by the manufacturing, mining, transportation and public utilities sectors, has diluted wage growth.

Are Part-Time Positions Really Low Quality Jobs?

On the low-wage end of the employment spectrum, the rapid growth in part-time employment has been at the center of the debate about perceived low quality jobs. Retail trade and the "Other Services" sector are singled out in this argument due to the high percentage of part-time workers and relatively low wages, on average, in these industries (Chart 5). But the "Other Services" segment of the service sector covers a diverse range of employment from high-paying positions in health services, business services, and legal services to lower-paying jobs in personal care services and domestic services.

Chart 5
Comparative 1987 Part-Time Labor Statistics
(Percent)



Moreover, the bulk of part-time workers in retail and "Other Services" jobs are part-time by choice (Chart 5). Many, such as mothers with children in school or students, would not be able to participate in the workforce at all if flexible part-time hours were not available. Similarly, workers who would prefer full-time work, but cannot find it in any other industry, often end up working part-time in the retail and "Other Services" industries, because there are more opportunities for part-time positions.

The larger percentage of part-time jobs in the retail and "Other Services"

industries, and their lower wages, on average, reflect the lower skill requirements and often transitory nature of many of these positions. Industries from manufacturing to financial services, which invest more heavily in worker training generally, expect a longer term, full-time commitment. Moreover, positions in the retail and some "Other Services" industries appear relatively low in pay compared with manufacturing jobs, in part because the lowest-skill, lowest-paying factory jobs have been shifted overseas. Many retail and "Other Services" jobs, which are generally tied to a specific location, do not have that option.

In addition, measuring the value of a job only by wage compensation ignores the greater contribution the position may make to a complex economy. Many lower-paying service jobs are substitutes for household tasks, which due to technological advances and increasing population density have achieved the economies of scale which make them a viable business in the market economy. The availability of these services has freed time for workers, particularly women, to undertake other productive activities, raising U.S. production and the general standard of living.

The Boom In High-Pay Services

The focus on the quality of part-time jobs often overshadows the tremendous growth in high-paying, full-time jobs within the service sector. Over 25% of all financial services jobs are executive or professional positions. Over 40% of employment in "Other Services" meet those criteria — the highest level in any employment sector. Executive and professional jobs pay, on average, more than $11.50 per hour — substantially above the current $8.31 national average for all wage and salary workers.

Rapid growth in these high-skill, high-paying occupations has kept both job growth and real wage gains in the "Other Services" sector growing more rapidly than in any other area of employment over the past twenty years. Indeed, in the current expansion, business and professional services employment has grown over three times as fast as employment gains in general — up at an 8% annual rate (Table 3). Legal services positions are up at a 6% annual rate and financial services employment at a 4%+ rate. As the economy becomes increasingly complex and internationally oriented, business has sought out specialists in finance, law, advertising, engineering and a wide spectrum of business services.

Growing personal discretionary income has also made rapid growth in health care employment a mainstay of the postwar period — although pressure on Medicare cost-sharing slowed this expansion in the mid-1980s. Since 1985, however, health-related employment has risen at a 3.5% annual rate.

The high wages in these industries reflect the fact that investment in higher education throughout the postwar period has produced above average returns in terms of income. Higher pay reflects the scarcity of highly skilled persons relative to the demand for their skills. The scarcity is partially a function of the lesser importance of competition from foreign labor in industries such as legal counseling, which generally concerns local laws, or health care, where the immediacy of treatment is often a major factor. The importance of complex problem-solving skills, and the lack of repetitive tasks also makes it difficult and expensive to automate many high-paying service positions, thus, maintaining higher wages.

Job Expansion in Service Sector Likely to Continue

The debate over good jobs for good wages is driven by two misconceptions — first, that economic policy can be designed to create both the number of jobs and the wages for those jobs,

Table 3
Employment Growth by Industry

	Thousands of Workers in:			Annualized Percent Change	
	1982	1985	1987	1982-1987	1985-1987
Total Employed	99,526	107,150	112,440	2.47	2.44
Goods Producing Sector	30,640	32,143	32,609	1.25	0.72
Agriculture & Fishery	3,471	3,253	3,300	-1.01	0.72
Forestry	99	85	100	0.20	8.47
Mining	1,028	939	818	-4.47	-6.67
Construction	5,756	6,987	7,456	5.31	3.30
Manufacturing	20,286	20,879	20,935	0.63	0.13
Service Sector	68,886	75,008	79,830	2.99	3.16
Transportation	4,303	4,459	4,815	2.27	3.92
Communications	1,533	1,603	1,525	-0.10	-2.46
Utilities & Sanitary Services	1,428	1,486	1,539	1.51	1.77
Wholesale Trade	4,120	4,341	4,580	2.14	2.72
Retail Trade	16,638	17,955	18,812	2.49	2.36
Finance, Ins. & Real Estate.	6,270	7,005	7,763	4.36	5.27
Other Services	30,089	33,164	35,550	3.39	3.53
Business and Professional Services	4,359	5,647	6,431	8.09	6.72
Auto & Repair Services	1,655	1,971	1,930	3.12	-1.05
Cleaning, Domestic, etc.	2,040	2,096	2,153	1.08	1.35
Lodgings	1,270	1,451	1,597	4.69	4.91
Beauty & Barber Shops	683	805	848	4.42	2.64
Entertainment & Recreation Services	1,205	1,358	1,444	3.69	3.12
Health Services	7,810	7,910	8,478	1.65	3.53
Legal Services	848	995	1,138	6.06	6.94
Educational Services	8,084	8,107	8,349	0.65	1.48
Religious Organizations	675	728	790	3.20	4.17
Welfare & Social Services	973	1,682	1,946	14.87	7.56
Membership Organizations	487	414	446	-1.74	3.79
Public Administration	4,505	4,995	5,246	3.09	2.48

Sources: Bureau of Labor Statistics and The Boston Company Economic Advisors, Inc.

and second, that job quality is measured only by the wage paid to the employee. The significant decline in the membership of powerful unions such as the steelworkers is testament to the fact that mandated high wages invite other employer options in the form of foreign production or investment in new technologies where machines replace workers.

The view that job quality is measured by high pay focuses more on the fact that highly skilled workers will generally earn higher wages, than on the true contribution of all jobs to the overall economy. The alternative to low-paying jobs for many workers would be no jobs, robbing the U.S. of these productive resources and lowering overall living standards.

The service sector, reflecting its diverse nature, encompasses both the highest-paying and lowest-wage industries of the economy. Growing incomes suggest that jobs in these industries will increasingly be in supply as consumers and businesses spend a rising share of income on services — as they have throughout the postwar period. Indeed, the local market orientation of many service sector jobs suggests that these industries will continue to provide the largest share of new employment in the U.S. in coming years, as rising real incomes in the U.S. lead cost conscious producers to make transportable goods in less expensive labor markets abroad.

Table 1
Summary of the Service Economy
(Billions of 1982 Dollars, SAAR, Except Where Indicated)

	1987:1	1987:2	1987:3	1987:4	1988:1	1988:2	1983	1984	1985	1986	1987
GNP—Expenditure Measure	3776.7	3823.0	3865.3	3923.0	3956.1	3985.2	3279.1	3501.4	3618.7	3721.7	3847.0
Services	1778.2	1797.2	1806.6	1822.3	1833.4	1846.1	1585.5	1625.2	1684.4	1738.1	1801.1
Goods	1998.5	2025.8	2058.6	2100.6	2122.7	2139.1	1693.6	1876.3	1934.5	1983.7	2045.9
Construction	382.4	380.2	381.1	386.7	374.6	376.7	326.6	367.1	380.8	384.7	382.6
GNP—Product Measure	NA	NA	NA	NA	NA	NA	3279.1	3501.4	3618.7	3721.7	3847.0
Services	NA	NA	NA	NA	NA	NA	2192.8	2312.0	2407.8	2498.9	2595.4
Goods	NA	NA	NA	NA	NA	NA	1022.7	1132.3	1176.1	1190.6	1228.9
Manufacturing	NA	NA	NA	NA	NA	NA	675.5	757.9	786.8	804.6	839.5
Agric./Mining/Construction	NA	NA	NA	NA	NA	NA	327.2	374.4	389.3	386.0	389.4
Consumption Expenditures	2490.2	2516.6	2545.2	2531.7	2559.8	2579.0	2146.0	2249.3	2354.8	2455.2	2520.9
Services	1222.0	1235.5	1246.8	1253.6	1265.9	1274.8	1062.7	1100.3	1152.3	1190.7	1239.5
Goods	1268.3	1281.1	1298.4	1278.1	1293.8	1304.2	1083.3	1149.0	1202.5	1264.5	1281.5
Plant and Equipment Expenditures	370.7	374.7	391.2	403.1	408.9	425.1	307.0	358.0	391.6	376.3	384.9
Services Industries	218.2	221.4	229.0	236.9	236.4	248.9	170.4	193.6	213.7	219.7	226.3
Goods Industries	152.5	153.3	162.2	166.2	172.5	176.3	136.6	164.4	177.9	156.6	158.6
Corporate Profits— Billions of dollars	213.0	219.2	234.6	222.2	236.6	243.1	166.6	203.2	191.4	212.8	222.3
Service Industries	128.2	125.4	127.6	120.5	126.0	128.6	96.4	114.5	111.8	133.4	125.4
Goods Industries	84.8	93.8	107.0	101.7	110.6	114.5	70.2	88.8	79.7	79.4	96.8
Current Account Balance— Quarterly rates)	-37.6	-40.9	-42.0	-33.5	-36.9	-33.3	-46.3	-107.1	-115.1	-138.8	-154.0
Services Balance	5.2	1.8	0.7	12.0	1.4	-0.5	30.3	17.5	22.1	21.0	19.8
True Services Balance [1]	0.5	0.6	0.8	1.2	1.6	2.5	6.6	2.0	0.4	3.3	3.1
Merchandise Trade Balance	-39.9	-39.6	-39.7	-41.2	-35.2	-29.9	-67.1	-112.5	-122.1	-144.5	-160.3

Sources: Bureau of Economic Analysis and The Boston Company Economic Advisors, Inc.

Table 2
Summary of the Service Economy
(Percent Change, SAAR, Except Where Indicated)

	1987:1	1987:2	1987:3	1987:4	1988:1	1988:2	1983	1984	1985	1986	1987
GNP—Expenditure Measure	4.5	4.9	4.4	6.0	3.4	2.9	3.6	6.8	3.4	2.8	3.4
Services	5.7	4.3	2.1	3.5	2.4	2.8	2.5	2.5	3.6	3.2	3.6
Goods	3.4	5.5	6.5	8.2	4.2	3.1	4.6	10.8	3.1	2.5	3.1
Construction	-1.4	-2.3	0.9	5.9	-12.5	2.2	9.1	12.4	3.7	1.0	-0.5
GNP—Product Measure	NA	NA	NA	NA	NA	NA	3.6	6.8	3.4	2.8	3.4
Services	NA	NA	NA	NA	NA	NA	3.6	5.4	4.1	3.8	3.9
Goods	NA	NA	NA	NA	NA	NA	2.5	10.7	3.9	1.2	3.2
Manufacturing	NA	NA	NA	NA	NA	NA	6.4	12.2	3.8	2.3	4.3
Agric./Mining/Construction	NA	NA	NA	NA	NA	NA	-4.2	7.8	4.0	-0.8	0.9
Consumption Expenditures	0.6	4.2	4.5	-2.1	4.4	3.0	4.7	4.8	4.7	4.3	2.7
Services	6.1	4.4	3.6	2.2	3.9	2.8	3.5	3.5	4.7	3.3	4.1
Goods	-4.5	4.0	5.4	-6.3	4.9	3.2	5.8	6.1	4.7	5.2	1.3
Plant and Equipment Expenditures	-5.0	4.3	17.6	12.1	5.8	15.9	-1.1	16.6	9.4	-3.9	2.3
Services Industries	-6.5	5.9	13.8	13.7	-0.8	21.1	0.3	13.6	10.4	2.8	3.0
Goods Industries	-2.8	2.0	23.2	9.9	15.2	8.7	-2.9	20.3	8.2	-12.0	1.2
Corporate Profits (%Ch Year-Over-Year)	2.2	2.7	8.0	4.9	11.1	10.9	27.0	22.0	-5.8	11.1	4.5
Service Industries	-3.7	-5.7	-11.0	-2.9	-1.7	2.6	31.7	18.7	-2.4	19.4	-6.0
Goods Industries	12.5	16.5	45.0	16.0	30.4	22.1	20.9	26.5	-10.3	-0.4	22.0

Sources: Bureau of Economic Analysis and The Boston Company Economic Advisors, Inc.

Table 3
Summary of the Service Economy
(Monthly Indicators)

	1988:4	1988:5	1988:6	1988:7	1988:8	1988:9	1983	1984	1985	1986	1987
Total Employment—											
Millions of Persons	105.3	105.5	106.1	106.3	106.5	106.7	90.2	94.5	97.5	99.5	102.3
Service Industries	79.8	80.0	80.5	80.6	80.8	81.1	66.9	69.8	72.7	75.0	77.5
Goods Industries	25.4	25.5	25.6	25.7	25.6	25.6	23.3	24.7	24.9	24.6	24.8
Total Compensation—											
Billions of Dollars	2394.0	2408.4	2427.5	2451.7	2459.4	NA	1676.6	1838.6	1974.9	2094.0	2248.4
Services	1708.9	1720.7	1733.1	1752.5	1759.7	NA	1153.6	1261.0	1365.7	1468.5	1598.6
Goods	685.1	687.7	694.4	699.2	699.7	NA	523.1	577.6	609.2	625.5	649.8
Consumer Price Index—All Urban,											
Percent Change, Year-Over-Year	3.9	3.9	4.0	4.1	4.0	4.2	3.2	4.3	3.5	1.9	3.7
Services	4.4	4.4	4.5	4.6	4.5	4.6	3.5	5.3	5.1	5.0	4.1
Goods	3.3	3.3	3.2	3.6	3.4	3.8	3.0	3.4	2.1	-1.0	3.2
Services Leading Indicator Index (%)[2]	0.4	-0.4	1.0	1.7	0.1	NA	4.5	2.3	3.5	4.0	3.0
Leading Economic Indicator Index—total (%)[2]	1.7	0.0	2.5	1.2	1.7	NA	15.3	3.6	3.1	6.5	5.3
Services Coincident Indicator Index (%)[2]	3.6	3.0	3.6	4.6	3.1	NA	3.3	3.7	3.8	3.1	3.5
Service Industries Stock Price Index	85.3	83.0	89.2	88.7	87.9	91.0	54.4	53.0	66.2	86.3	95.4
S&P 500 Stock Price Index	262.6	256.1	270.7	269.1	263.7	268.0	160.4	160.5	186.8	236.3	286.8

[1] *True Services Balance is the balance on Service exports and imports excluding exports and imports of investment income and government transactions.*

[2] *Growth rate expressed in six-month smoothed percent changes at annual rate, based on the ratio of the current month's index to the average for the preceding twelve months.*

Sources: Bureau of Economic Analysis, Bureau of Labor Statistics, Center for International Business Cycle Research and The Boston Company Economic Advisors, Inc.

THE COALITION OF SERVICE INDUSTRIES was formed in 1982 to increase public awareness of the expanding role of the service sector in the U.S. economy. One of the priorities of the Coalition is to improve the adequacy of statistical programs in their measurement and analysis of the service sector.

THE SERVICE ECONOMY is a product of the CSI Task Force on Data Collection and Statistical Improvement. Comments or suggestions should be directed to Beth Bogie (American Express), Task Force Chairman, at 212/640-5166, or to Margaret Wigglesworth, Executive Director of CSI, at 202/467-3043.